Visual Radar

Completed Technology Project (2017 - 2018)

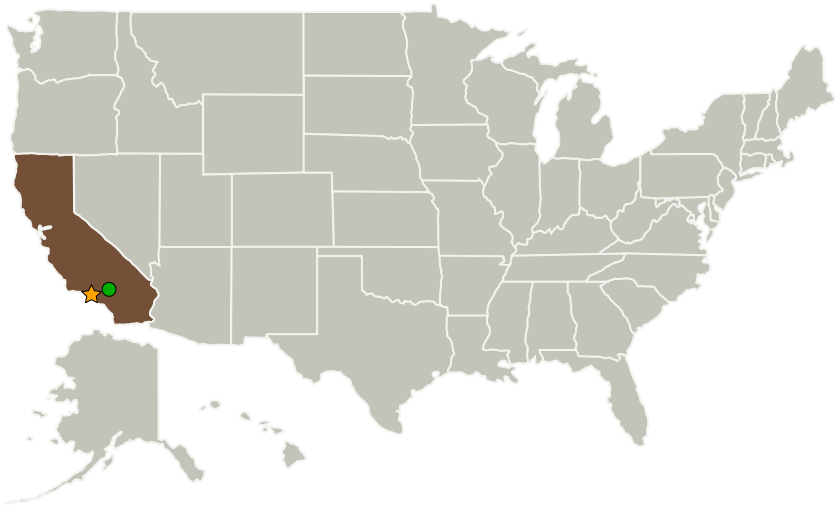
Project Introduction

To define sensor and terrain relative navigation (TRN) requirements for high speed motion at low altitudes (look-ahead distance, motion blur) and develop collaborative stereo technology for robust vision-based TRN.

Anticipated Benefits

In addition to the NASA Aeronautics application, represented by NASA Armstrong, the DoD is also very interested in this technology for flexible surveillance systems (visual radar), perimeter surveillance (mover detection), etc.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★Jet Propulsion Laboratory(JPL)	Lead Organization	NASA Center	Pasadena, California
●Armstrong Flight Research Center(AFRC)	Supporting Organization	NASA Center	Edwards, California

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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Jet Propulsion Laboratory (JPL)

Responsible Program:

Center Innovation Fund: JPL CIF

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California

Project Transitions

October 2017: Project Start

September 2018: Closed out

Closeout Summary: Aircraft/spacecraft need robust collision avoidance for navigation in close proximity to terrain (low altitude flight, small body navigation) that can tolerate non-static environments. This work involved developing a collaborative stereo technology for robust passive (vision-based) terrain relative navigation based on two non-static cameras. The cameras can be small enough to mount on wing-tips, providing a sufficient baseline.

Project Website:

https://www.nasa.gov/directorates/spacetech/innovation_fund/index.html#.VC

Project Management

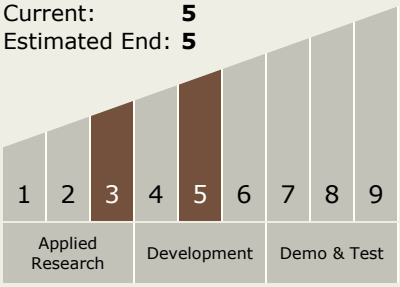
Program Director:
Michael R Lapointe

Program Manager:
Fred Y Hadaegh

Principal Investigator:
Roland Brockers

Technology Maturity (TRL)

Start: **3**
Current: **5**
Estimated End: **5**



Technology Areas

Primary:

- TX16 Air Traffic Management and Range Tracking Systems
  - TX16.5 Range Tracking, Surveillance, and Flight Safety Technologies

Target Destination

Others Inside the Solar System